



LABOUR
General Safety Services Division
Electrical Protection Branch

10808 - 99 Avenue, Edmonton, Alberta, Canada T5K 0G5 403/427-8260

1986 08 29

STATISTICS

RE: ELECTRICAL ACCIDENTS IN ALBERTA

1985 04 01 to 1986 03 31

ATTACHED IS:

- (1) a summary of electrical accidents in Alberta investigated by the Electrical Protection Branch of Alberta and those investigated and reported to the Branch by Municipal Inspection Authorities from Calgary, Edmonton and Lethbridge during the period 1985 04 01 up to and including 1986 03 31.

Accidents in attachment (1) are chronologically listed in order of their occurrence and include only those where fatalities or injuries resulted.

- (2) a summary of power line contacts reported to the Electrical Protection Branch during the period 1985 04 01 up to and including 1986 03 31.

Investigations were conducted when fatalities or injuries occurred and in other instances when warranted.

It is to be noted that the power line contacts involving fatalities or injuries are also indicated in attachment (1). Also, the underground power line contacts involve high voltage cables or equipment only.

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TECHNICAL ADMINISTRATOR
PERMITS & PUBLICITY

ATTACHMENT (1)

**ELECTRICAL ACCIDENTS INVESTIGATED BY THE ALBERTA ELECTRICAL PROTECTION BRANCH
AND MUNICIPAL ELECTRICAL INSPECTION AUTHORITIES DURING THE PERIOD
1985 04 01 TO 1986 03 31**

FATAL ACCIDENTS

OCCURRENCE

1985 04 16 Student	Twelve year old student was electrocuted while flying a kite which was attached to a metal fishing rod and line that contacted a 15 kV overhead power line.
1985 05 17 Power Lineman	Power lineman was electrocuted when he contacted the conductor of a 25 kV overhead power line while installing lightning arresters.
1985 05 23 Power Lineman	Fourth year apprentice power lineman was electrocuted while in contact with an anchor installing tool on a digger boom truck that contacted a 15 kV overhead power line.
1985 07 05 Student	Sixteen year old student was electrocuted when he climbed a platform substation and contacted a conductor energized at 15 kV.
1985 09 18 Person	Unauthorized person was electrocuted when he climbed a transformer pole and contacted a 15 kV conductor while attempting to re-connect the transformer.
1986 02 04 Person	Person was electrocuted when he contacted a 15 kV overhead power line conductor while attempting to rescue the family cat from the top of a transformer pole.
1986 03 04 Swamper	Swamper was electrocuted while handling slings on a gin pole truck that contacted a 15 kV overhead power line.

NONFATAL ACCIDENTS

OCCURRENCE

1984 08 28 Worker	Maintenance man received electrical shock and burns to his shoulder when he contacted an energized part of a 120/208 V panel while an electrician was working on the panel.
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NONFATAL ACCIDENTS

OCCURRENCE

1984 12 07
Worker

Communication worker received burns to the back of his right hand when he dropped a ratchet handle into the bus bars of a 48 V rectifier which initiated short circuit arcing.

1984 12 12
Electrician

Third year apprentice electrician received electrical shock and burns to the fingers on his left hand while installing a plug on an energized 120 V circuit.

1985 01 07
Electrician

Electrician received electrical shock when screwdriver slipped off the "hot" terminal in a motor starter.

1985 01 09
Manager

Warehouse manager received an electrical shock while servicing a 208 V unit air filter without shutting off the power.

1985 02 18
Electrician

Electrician received burns to his right hand when removing fuse from fuse holder on a 600 V overhead crane.

1985 02 28
Electrician

Electrician received electrical shock and burns to different parts of his body while cleaning a 13.8 kV energized switch enclosure in a switch room.

1985 03 08
Worker

Assembly line worker received electrical shock and burns to both hands when he contacted energized conductors while attempting to test a 208 V air conditioning unit.

1985 03 30
Electrician

First year apprentice electrician received electrical shock and fell off ladder while working on energized 120/208 V fluorescent fixtures.

1985 04 12
Electrician

First year apprentice electrician received surface burns to a finger and thumb from an arc which resulted when a cover he was installing on a 120/208 V panel shorted the energized bus to ground.

NONFATAL ACCIDENTS

OCCURRENCE

1985 04 14
Student

Student received electrical shock and burns to his left hand, wrist and feet while flying a kite attached to a metal fishing line that contacted a 15 kV overhead power line.

1985 04 17
Person

Person received electrical shock and burns to both hands while testing a motor generator when unit was turned on.

1985 04 29
Clerk

Clerk received electrical shock and burns to a finger from contacting energized terminals while emptying a coin box on a soft drink machine.

1985 04 29
Labourer

Labourer received electrical shock and burns to his left hand while felling a tree which contacted a 15 kV overhead power line.

1985 05 02
Electrician

Electrician received electrical shock and burns to his hands and fingers when he contacted energized parts while checking settings on a 600 V fire pump panel.

1985 05 03
Electrician

Electrician received electrical shock and burns to four fingers of his right hand when he contacted an energized underground 480 V feeder conductor while hand searching for the conductor in a trench.

1985 05 06
Person

(1) Young person received electrical shock and burns when a CB antenna being removed from a mobile home contacted a 25 kV overhead power line.

1985 05 06
Person

(2) Young person received electrical shock and burns when a CB antenna being removed from a mobile home contacted a 25 kV overhead power line.

1985 05 08
Swamper

Swamper received electrical shock and burns to his hands and feet while handling the load on a lifting boom which contacted a 15 kV overhead power line.

NONFATAL ACCIDENTS

OCCURRENCE

1985 05 09
Plumber

Plumber received electrical shock and burns to the bottom of his right foot when he contacted an energized conductor of a faulty 120 V extension cord while working in a farm well pit.

1985 05 10
Electrician

Electrician received flash burns to his face while servicing energized 600 V relays in a metal enclosure when an arc occurred from an energized conductor contacting the grounded enclosure.

1985 05 08
Power Lineman

Apprentice power lineman received burns to his face and arms from an arc which occurred when overhead 277/480 V service conductors shorted while a voltage reading was being taken.

1985 05 08
Electrician

Electrician received burns to his right hand from an arc which occurred when he attempted to turn on an incorrectly wired 480 V control switch.

1985 05 15
Mechanic

Refrigeration mechanic received burns to the back of his right hand from an arc which resulted from faulted phases in a contactor while voltage reading were being taken.

1985 05 16
Person

Person received electrical shock from touching the metal enclosure of a remote stop-start station that was accidentally energized at 125 V.

1985 05 22
Electrician

Electrician received electrical shock and suffered internal injuries when he fell from a ladder while splicing energized 120 V conductors.

1985 05 22
Power Lineman

Power lineman received flash burns to his face from an arc that resulted when he removed a 120/240 V meter from an energized meter socket.

1985 05 22
Electrician

Electrician received flash burns to his face, hands, arms and upper body from an arc that occurred immediately after he completed the testing of potential transformers in a 13.8 kV commercial switchgear unit.

NONFATAL ACCIDENTS

OCCURRENCE

1985 05 23
Surveyor

Surveyor received electrical shock and burns to the right hand and right foot when his surveyor measuring rod contacted a fallen 15 kV overhead power line conductor with his measuring rod.

1985 05 23
Person

Person received electrical shock and burns to his right hand from a faulty test lead on a 120/6000 V heart defibrillator.

1985 05 24
Power Lineman

Power lineman received electrical shock and burns when he accidentally contacted an 8 kV overhead power line conductor while attempting to manoeuver the bucket of a double bucket boom truck into position.

1985 05 27
Electrician

Electrician received burns to both hands from a arc which occurred when a handle was being changed on an energized 600 A, 480 V shunt trip breaker.

1985 05 29
Swamper

Swamper received electrical shock and burns while handling the rigging equipment on a boom truck when the boom contacted a 25 kV overhead power line.

1985 05 29
Electrician

Electrician received burns to the face from hot particles which resulted when his screwdriver shorted energized parts to the frame on a 600 V breaker.

1985 05 31
Clerk

Clerk received electrical shock and burns to the thumb and fingers from contacting energized conductors on a cord which broke when a 120 V coffee maker was being plugged in.

1985 06 03
Person

Person received electrical shock and burns to different parts of his body when he threw a television mast over a fence and the mast contacted a 25 kV overhead power line.

1985 06 07
Person

Person received electrical shock and burns to his forehead and left foot when he contacted a 15 kV overhead power line while walking on top of a storage tank that had been placed under the line.

NONFATAL ACCIDENTS

OCCURRENCE

1985 06 10
Swamper

Swamper received electrical shock and burns to his left thumb and heel while guiding a load when the lifting boom handling the load contacted a 15 kV overhead power line.

1985 06 17
Worker

Seismic worker received electrical shock and burns to his right arm and feet while in contact with a seismic truck when seismic recording cable was blown over a rural overhead power line.

1985 06 19
Person

Person received an electrical shock and fell from a ladder when he attempted to remove a multi-tap device from an energized recessed light fixture.

1985 06 27
Trucker

(1) Trucker received electrical shock and burns to his hands and feet while guiding a load when the truck mounted boom handling the load contacted a 25 kV overhead power line.

1985 06 27
Trucker

(2) Trucker received electrical shock and burns to his body while guiding a load when the truck mounted boom handling the load contacted a 25 kV overhead power line.

1985 07 16
Operator

Operator received electrical shock and burns to his hand while guiding a load when the lifting boom handling the load contacted a 25 kV overhead power line.

1985 07 23
Electrician

Electrician received burns to both wrists & forearms from an arc while testing a 440 V compressor starter.

1985 07 31
Electrician

Electrician received electrical shock and a sprained wrist when he fell as a result of a temporary lighting circuit energizing the scaffold he was holding.

1985 08 01
Welder

Welder received electrical shock and burns to his hands when he contacted a faulty welding cable.

NONFATAL ACCIDENTS

OCCURRENCE

1985 08 05
Farmer

Farmer received electrical shock and burns to his hands and feet when he raised an irrigation pipe into a 15 kV overhead power line.

1985 08 06
Technician

Instrument technician received flash burns to his hands and face when he closed the cover of a 480 V breaker and motor starter assembly enclosure and an arc occurred.

1985 08 21
Technician

Air crew technician received burns to his left hand and face when the operating handle of a circuit breaker came loose and contacted a 600 V fuse clip causing an arc.

1985 08 26
Operator

Seismic operator received electrical shock and burns to his back, toes and buttocks when the drilling rig he was operating contacted a 15 kV overhead power line.

1985 08 26
Electrician

Electrician received burns to his left hand, arm and neck from the arc created by an electrical short circuit in an 800 A, 600 V panelboard on which he was working.

1985 09 14
Person

Person received electrical shock and burns to fingers while attempting to remove a tree in contact with a 25 kV overhead power line.

1985 09 16
Truck Driver

Truck driver received electrical shock and burns to his right hand, left knee and bottom of feet while operating controls when the box of the truck was raised into a 25 kV overhead power line.

1985 09 30
Worker

(1) Farm worker received electrical shock and burns and thermal burns from burning clothing when a grain auger being moved contacted a 7.2 kV overhead power line.

1985 09 30
Worker

(2) Farm worker received electrical shock and burns to the left hand and right foot when a grain auger being moved contacted a 7.2 kV overhead power line.

NONFATAL ACCIDENTS

OCCURRENCE

1985 09 30
Worker

(3) Farm worker received electrical shock and burns to the right hand and foot when a grain auger being moved contacted a 7.2 kV overhead power line.

1985 09 30
Electrician

Electrician received burns to the hands and face while attempting to remove a 200 A switch from an energized 600 V enclosure when a screwdriver being used caused a short circuit resulting in an arc.

1985 09 30
Homeowner

Homeowner received electrical shock and burns while handling a tree being removed with a lifting crane when the tree contacted a 15 kV overhead power line.

1985 10 18
Student

Student received electrical shock and burns to the left hand and toes when he walked up a tree, which had been blown on the overhead power line, and swung from the 15 kV power line conductor to the ground.

1985 10 18
Electrician

Electrician received burns to left hand while checking voltage with a meter in a 60 A, 600 V fused switch.

1985 10 19
Worker

Hospital kitchen helper received electrical shock while unplugging a food cart when a faulty cord and heating element caused the cart to become energized.

1985 10 20
Electrician

Fourth year apprentice electrician received electrical shock resulting in strained chest muscle when he contacted energized parts while changing a ballast on a 347 V light fixture.

1985 11 05
Electrician

Electrician received burns to hand while testing a 3 pole, 440 V toggle switch.

1985 11 05
Housekeeper

Housekeeper received electrical shock causing unconsciousness while plugging in a vacuum cleaner and inadvertently contacting the energized blade of the plug.

NONFATAL ACCIDENTS

OCCURRENCE

1985 11 08
Power Lineman

Power lineman received electrical shock and burns to the body when he contacted an energized riser on a 25 kV overhead power line transformer pole.

1985 11 12
Person

Person received electrical shock when the case of a vacuum cleaner came in contact with the energized case of a damaged battery charger.

1985 11 15
Worker

Kitchen helper received electrical shock and burns to thumb while plugging in a 50 A cooker when the chain used to support the cord cap became energized on the blades of the plug.

1985 11 27
Electrician

Electrician received burns to face, neck and hands while installing circuit breakers into an energized 600 A panel.

1985 11 28
Operator

(1) Fork lift operator received electrical shock and burns to the left hand and foot when a light standard being loaded onto a truck contacted a 138 kV overhead power line.

1985 11 28
Truck driver

(2) Truck driver received electrical shock and burns to an arm when a light standard being loaded onto a truck contacted a 138 kV overhead power line.

1985 12 11
Person

Person received burns to face and hands while replacing a breaker in a ganged meter stack arrangement.

1985 12 19
Person

Person received electrical shock and burns to middle finger of right hand when he contacted an energized conductor of an improperly terminated armoured cable.

1986 01 28
Person

Person received electrical shock while in a shower which became energized from a nail being driven into an electrical cable.

NONFATAL ACCIDENTS

OCCURRENCE

1986 02 03
Electrician

Apprentice electrician received an electrical shock and burns to hands while working on an energized 347 V lighting circuit.

1982 02 24
Electrician

Electrician received electrical shock and burns to left hand after contacting a damaged cable in a manhole.

1986 03 04
Swamper

Swamper received electrical shock and burns to hands, chest and feet when handling slings on a gin pole truck that contacted a 15 kV overhead power line.

1986 03 04
Person

Person received electrical shock and burns to hands and chest when energized components of a Skin Service Machine were contacted.

1986 03 04
Operator

Cement pump truck operator received electrical shock and burns to the hands and left foot when the cement pump truck boom contacted a 25 kV overhead power line.

1986 03 07
Power lineman

Power lineman received electrical shock and burns to the hands from induction while attempting to move a protective grounding clamp on a 25 kV overhead power line which became disconnected placing the lineman in series with the grounded circuit.

1986 03 13
Power Lineman

Power lineman received electrical shock and burns to two fingers when he inadvertently touched a conductor of a 25 kV overhead power line.

1986 03 19
Electrician

Electrician received burns to both hands while attempting to take a voltage reading with the meter set on the ohmic scale.

LIVESTOCK FATALITIES

OCCURRENCE

85 06 21
1 Horse

One horse was electrocuted by contacting a fence that was energized by the fallen conductor of a 15 kV overhead power line.

85 08 05
10 Cattle

Ten cattle were electrocuted by contacting a low hanging energized conductor of a 25 kV overhead power line that resulted from storm damage which broke a power line pole.

85 08 10
2 Horses

Two horses were electrocuted by contacting a fence that was energized by the fallen conductor of a 480 V overhead power line that resulted from storm damage which broke a cross-arm on the power line.

86 09 24
1 Dog

A dog was electrocuted by contacting a conduit that was energized by a faulted 120/240 V underground service cable.

86 03 01
1 Horse

One horse was electrocuted by contacting a low hanging energized conductor of a 15 kV overhead power line that resulted when strong winds broke a conductor tie on the power line.

ATTACHMENT (2)

**ELECTRICAL POWER LINE CONTACTS REPORTED TO THE
ALBERTA ELECTRICAL PROTECTION BRANCH
DURING THE PERIOD 1985 04 01 TO 1986 03 31**

A total of 511 electrical power line contacts were reported to the Electrical Protection Branch during the period April 1, 1985 to March 31, 1986. The total includes 442 contacts with overhead power lines and 61 contacts with high voltage underground power cables.

Seven fatalities and 33 injuries to persons resulted from these contacts. Following is a breakdown of the contacts, fatalities and injuries. The number of fatalities and serious injuries associated with each type of contact is noted in brackets in the margin.

F means fatality

S means serious injury

OVERHEAD POWER LINE CONTACTS

- 129 by vehicles or equipment contacting poles or guy wires resulting in damage to the conductors;
- (1F)(4S) 105 by high equipment contacting lines when the equipment was being moved or handled;
- 54 by high loads contacting lines when the loads were being moved;
- (2S) 52 by trees contacting lines during brushing or trimming;
- (1F)(10S) 40 by lifting booms, lifting cables or loads being lifted contacting lines;
- 11 by animals contacting low hanging lines;
- 7 by grain bins contacting lines when the bins were being moved;
- (3S) 6 by grain augers contacting lines when the augers were being moved;
- 6 by aircraft contacting lines;
- (1F) (1S) 3 by kites contacting lines;
- (1S) 3 by irrigation pipes contacting lines when the pipes were being handled;
- (3S) 3 by antennas contacting lines when the antennas were being handled;
- 3 by animals contacting fences that were in contact with lines;
- 3 by guy wires contacting lines;

- (1S) 2 by testing sticks contacting line;
- 2 by seismic shot wire contacting line;
- 1 by sling contacting line;
- (1F) 1 by person climbing platform substation and contacting line;
- (1F) 1 by unauthorized person contacting transformer riser on power line pole;
- (1F) 1 by person contacting line while attempting to rescue the family cat;
- (1S) 1 by seismic recording cable contacting line;
- (1S) 1 by student walking up tree that was blown on line and contacting conductor;
- (1S) 1 by worker contacting line from the top of a tank (inadequate clearance provided between line and tank);
- (1S) 1 by surveyor measuring rod contacting line;
- (1F) 1 by power lineman contacting line while installing lightning arresters;
- (1S) 1 by power lineman accidentally contacting riser on transformer pole;
- (1S) 1 by power lineman contacting grounding clamp on line which became disconnected (Induction);
- (1S) 1 by line conductors shorting together when a voltage reading was being taken;
- (1S) 1 by power lineman inadvertently contacting line;

UNDERGROUND POWER CABLE CONTACTS (HIGH VOLTAGE ONLY)

- 56 by excavating equipment contacting high voltage power cables;
- 13 by vehicles hitting padmount transformers or switching cubicles causing damage to or exposure of high voltage power cables;

FATALITIES RESULTING FROM CONTACTS WITH OVERHEAD POWER LINES

- 1 to person handling slings when a gin pole truck contacted line;
- 1 to person when kite contacted line;
- 1 to person that climbed platform substation and contacted line;

- 1 to unauthorized person that contacted a transformer riser on power line pole;
- 1 to person contacting line while attempting to rescue the family cat;
- 1 to power lineman handling anchor tool when digger boom contacted line;
- 1 to power lineman contacting line while installing lightning arresters;

INJURIES RESULTING FROM CONTACTS WITH OVERHEAD POWER LINES

- 10 to workers handling loads when loads or lifting equipment contacted lines;
- 4 to workers when high equipment contacted lines while the equipment was being moved or handled;
- 3 to workers handling grain augers when the augers contacted lines;
- 3 to persons handling antennas when the antennas contacted lines;
- 2 to workers contacting trees which contacted lines during brushing or trimming;
- 1 to person when kite contacted line;
- 1 to farmer when irrigation pipe was raised into line;
- 1 to worker when seismic recording cable contacted line;
- 1 to student when conductor was contacted by walking up tree that was blown on line;
- 1 to worker when line was contacted from the top of a tank;
- 1 to surveyor when measuring rod contacted line;
- 1 to power lineman when testing stick contacted line;
- 1 to power lineman when riser on transformer was contacted;
- 1 to power lineman when grounding clamp on line became disconnected (Induction);
- 1 to power lineman when line conductors shorted together while a voltage reading was being taken;
- 1 to power lineman when line was inadvertently contacted;

POWER LINE CONTACTS SUMMARY

Recorded periods are April 1 to March 31 of the following year.

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Contacts Reported	256	239	262	198	295	480	398	466	393	511
Overhead Contacts	210	206	186	156	251	420	359	415	355	442
Underground Contacts	46	33	76	*42	*44	*60	*39	*51	*38	*69
Fatalities (O/H Contacts)	2	5	8	2	9	11	6	1	1	7
Fatalities (U/G Contacts)	0	0	0	0	0	0	0	0	0	0
Injuries (O/H Contacts)	25	29	39	31	44	32	12	16	20	33
Injuries (U/G Contacts)	0	0	3	0	1	**4	**2	0	0	0

* contacts reported involve high voltage cables or equipment only

** includes one injury which occurred on a low voltage cable